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Cefoperazone-sulbactam and alcohol induced Disulfiram like reaction in an elderly patient in the emergency department

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Case Report

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Abstract

Introduction: Disulfiram reaction due to drugs like metronidazole, tinidazole and ornidazole and Cephalosporin antibiotics and drugs needs special attention in clinical practice to avoid unnecessary complications as a part of this due to interaction between the drugs and alcohol metabolism.

Case scenario: In this clinical case 61-year-old elderly patient who has been treated for Acute diarrheal disease with Cefoperazone-sulbactam, along with prebiotics and other symptomatic treatment, consumed alcohol after discharge from the hospital on the same day and presented in the emergency department with complaints of palpitation, facial flushing, and chest uneasiness with hypotension. Patient managed symptomatically with IV fluids, DNS, and discharged without any sequelae or complications

Discussion: Disulfiram like reaction due to nitroimidazole compounds and cephalosporins are not uncommon and it warrants the immediate identification of adverse drug reaction to alcohol in the back ground of antibiotic therapy with Cefoperazone-Sulbactum to avoid unwanted complications and sequalae. Tinidazole like cephalosporins compounds like Cefoperazone-Sulbactum molecule inhibit the aldehyde dehydrogenase and result in the accumulation of acetaldehyde as a part of alcohol metabolism leading to the toxic disulfiram like reactions(1). In this clinical case patient after consuming the alcohol brand in the background of the drug Cefoperazone-Sulbactum in the circulation presented with palpitation, chest uneasiness and facial flushing and hypotesion which was not severe and managed symptomatically with IV DNS and recovered without any sequelae.

Conclusion: According to WHO causality assessment the Cefoperazone-Sulbactum and alcohol can be taken under "Possible" category as the culprit medication for the disulfiram like reaction.

Introduction

Disulfiram like reaction occurs if any drugs that interfere with the xenobiotic metabolism of alcohol, especially at the step of the conversion of acetaldehyde to nontoxic compounds and helps to eliminate easily from the system. So Disulfiram, metronidazole(2), tinidazole(3),cefoperazone-sulbactum(4) like molecules have the ability to inhibit the acetaldehyde dehydrogenase and resulting in accumulation of acetaldehyde in the system leading to the disulfiram like reaction characterized by palpitation , dizziness, delirium , cardiac arrythmias and in severe cases the respiratory depression and cardiac arrest like events.

Case Scenario

61 year old male patient who has been admitted in the ward for acute diarrhoeal disease and treated with intravenous Cefoperazone-Sulbactam, pre-probiotics and pantoprazole for his medical condition and discharged from the ward uneventful with discharge medications Tab Ciprofloxacin+ Tinidazole(Tab Ciplox Tz), Vyzylac, Tab.Pantoprazole

Patient presented in the emergency department with complaints of the palpitation and generalized uneasiness on that night after a history of consumption of alcohol brand 1 peg at the late evening 8.00 pm , and he presented with palpitation and uneasiness by 8.20 pm and brought to the emergency department .

In the emergency department on examination – patient was concious , oriented in time and place, Pulse rate-115/ minute , Blood pressure – 100/60 mmhg and generalized uneasiness + , Glasco Coma Scale-15/15 , Respiratory rate -18/ minute , ECG- Sinus arrythmia+

Patient treated with Intravenous fluids – 1 Pint DNS and serial monitoring of vitals recorded. After 1 hour patients blood pressure – 110/67 mmhg and pulse rate -67/ minute and SPO2- 98 % and the palpitation decreased and ECG – Become sinus rythum

Discussion

Patient have in taken the injection cefoperazone-sulbactum and ciprofloxacin in the morning and after intake of the alcohol in the late evening hours the palpitation and uneasiness and facial flushing was secondary to accumulation of acetaldehyde in the circulation secondary to inhibiton of the acetaldehyde dehydrogenase by the drug cefoperazone-sulbactum given in the morning hours(1). As the drug given in the Morning 9 am by the 8pm the drug have been metabolized and eliminated from the circulation, that's why the exaggerated reaction not occurred. And the entire event was self-limiting with tachycardia and hypotension which was well managed with IVF- DNS only and monitoring of the parameters in the emergency department.

The culprit drug behind the reaction was cefoperazone-sulbactum and contributed by the alchohol (5). So According to WHO causality assessement both drug can be Possibly linked to the event occurred in this patient.

Conclusion

The Cefoperazone-sulbactum induced Disulfiram like reaction occurred as the event of tachycardia and hypotension in this patient and it can be possibly linked to the Drug Cefoperazone-sulbactum and Alcohol. The entire event was recovered without any sequelae or complication and managed uneventfully in the casualty department. So this report enlighten the importance of drug drug interactions leading to serious adverse drug reactions and need of proper sensitization of clinicians and other medical fraternity regarding these drug drug interactions and early identification of the events if any. Cefoperazone- Sulbactum is one of the common antibiotics used for multiple indication especially in Inpatients and ICU patients so the interaction between this drug and alcohol indeed need an specific attention to avoid these unwanted events.

Abbreviations

1. IVF- DNS: Intravenous fluid – Dextrose normal saline

2. WHO- World Health Organization

3. ECG- Electrocardiogram

Declarations

CONSENT TO PARTICIPATE:

All the authors confirm that the patient consent form has been obtained from this patient.

CONSENT FOR PUBLICATION:

Written informed consent was obtained from the patients for publication of this case series and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal

AVAILABILITY OF DATA AND MATERIALS:

Data sharing does not apply to this article as no datasets were generated or analysed during the current study. All necessary information related to the case report has been provided in the article.The patient's consent form will be provided upon reasonable request to the corresponding author

COMPETING INTERESTS:

The authors declare that they have no competing interests.

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AUTHORS' CONTRIBUTIONS:

Case clinical scenario and adverse drug event monitored by initiated the conception of the case report. Case report written by AS, AP. Discussion and possible relations of the case scenario and adverse drug event inferred by AS, AP,VM. Consent taken by AS . All authors read and approved the final manuscript.

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References

1. McMahon FG. Disulfiram-like reaction to a cephalosporin. JAMA. 1980;243(23):2397. PMID: 6248850. https://doi.org/10.1001/jama.243.23.2397

2. Alonzo MM, Lewis TV, Miller JL. Disulfiram-like reaction with metronidazole: an unsuspected culprit. J Pediatr Pharmacol Ther. 2019;24(5):445-449. PMID: 31592047. https://doi.org/10.5863/1551-6776-24.5.445
3. National Institute of Diabetes and Digestive and Kidney Diseases. Tinidazole. In: LiverTox: Clinical and Research Information on Drug-Induced Liver Injury [Internet]. Bethesda (MD): NIDDK; 2012 [cited 2025 Aug 16]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK548538/
4. Ren S, Cao Y, Zhang X, Jiao S, Qian S, Liu P. Cephalosporin-induced disulfiram-like reaction: a retrospective review of 78 cases. Int Surg. 2014;99(2):142-146. PMID: 24755786. https://doi.org/10.9738/INTSURG-D-13-00164.1
5. Mergenhagen KA, Wattengel BA, Skelly MK, Clark CM, Russo TA. Fact versus fiction: a review of the evidence behind alcohol and antibiotic interactions. Antimicrob Agents Chemother. 2020;64(3):e02167-19. PMID: 31896571. https://doi.org/10.1128/AAC.02167-19

Annexures

1. ECG of the patient when brought to the emergency department
2. ECG after 1 hour in the emergency department

Figures

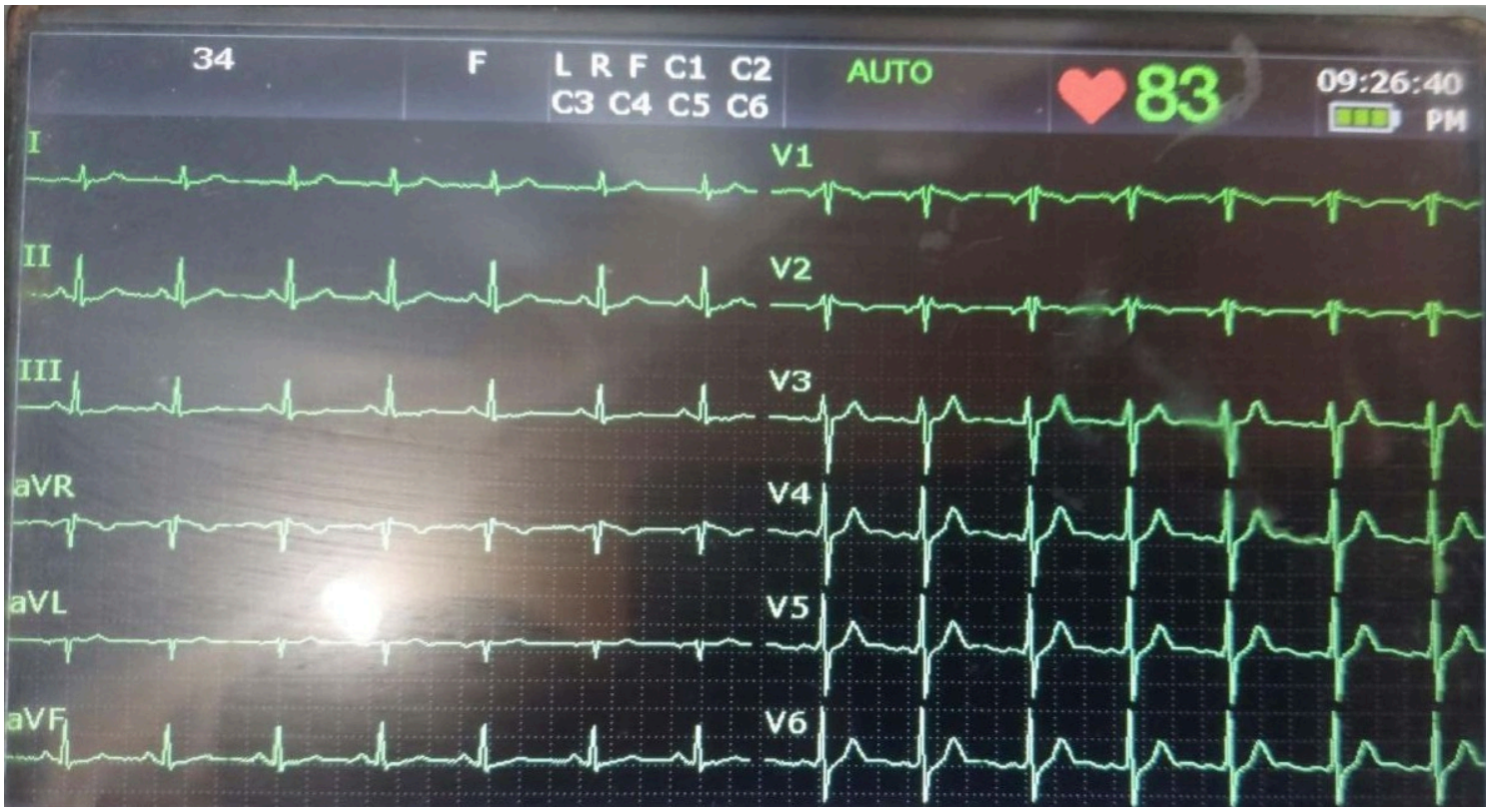


Figure 1

ECG of Patient when brought to the emergency department

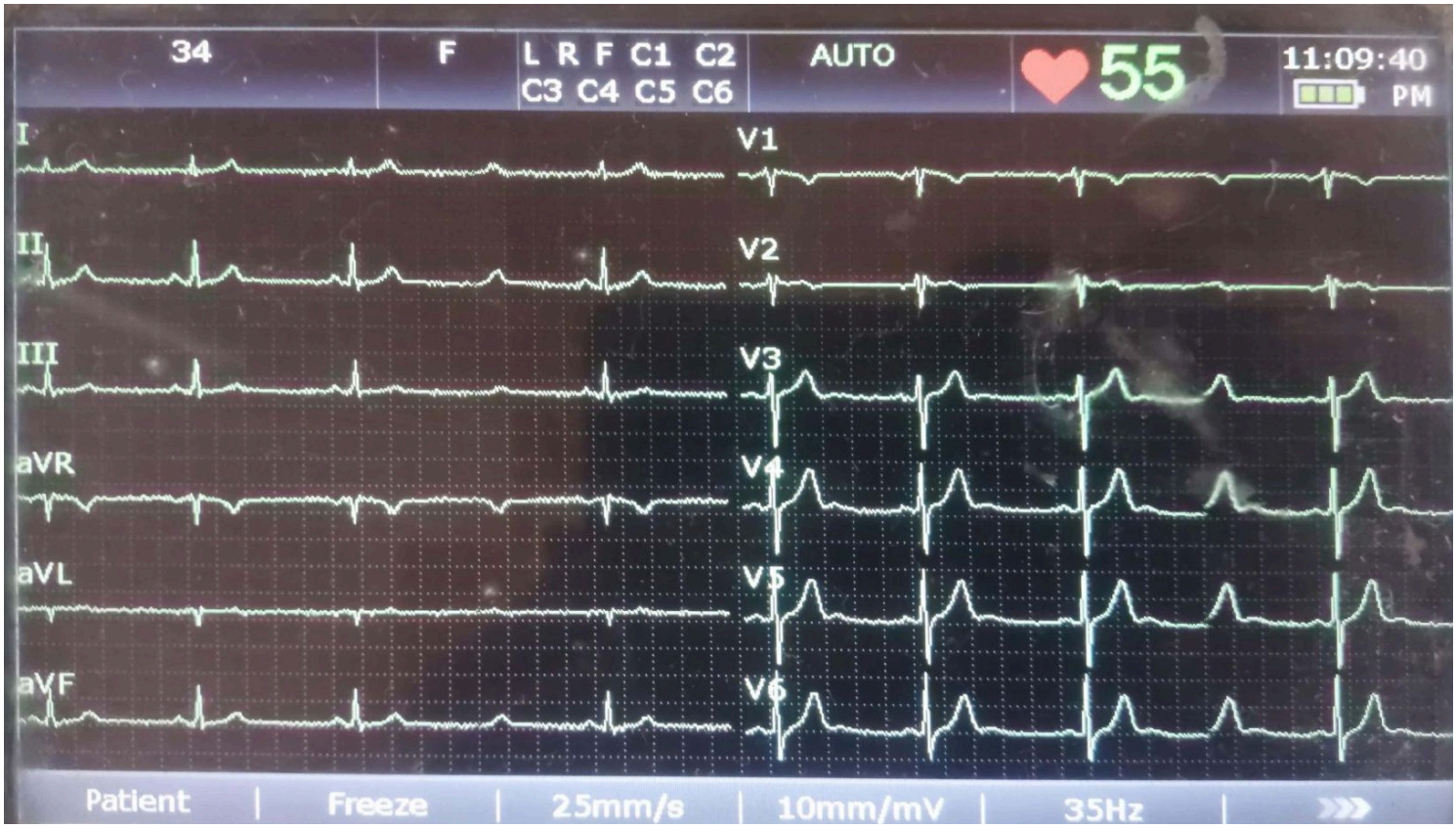


Figure 2

ECG after 1 hour in the emergency department